HAZARDOUS ENERGY CONTROL PROGRAM
(LOCKOUT/TAGOUT)

for

Stuttgart\Pine Bluff Locations (SNARC\DBNRRC\ASRU)
U.S. Department of Agriculture
Agricultural Research Service

I. INTRODUCTION

A. The United States Department of Agriculture, Agricultural Research Service, and the Stuttgart/Pine Bluff Location (**SPBL**), which consists of the Aquaculture Systems Research Unit (ASRU, 1200 N. University Dr., Mail Stop 4912, Pine Bluff, AR 71601), the Dale Bumpers National Rice Research Center (DB NRRC, 2890 Hwy 130 E., P.O. Box 1090, Stuttgart, AR 72160) and the Harry K. Dupree Stuttgart National Aquaculture Research Center (HKD SNARC, 2955 Hwy 130 E., P.O. Box 1050, Stuttgart, AR 72160) are committed to the ideals of protecting Location employees from the accidental release of energy during maintenance or service operations.

B. The general intent of this plan is to:

1. Comply with the various local, state, and federal regulations governing Lockout/Tagout. Chief among these is the Control of Hazardous Energy (Lockout/Tagout) Standard found in 29 Code of Federal Regulations (CFR) 1910.146.

2. The Location Safety Officer (LSO) is the Lockout/Tagout coordinator for **SPBL**

C. The procedures in this plan do not apply when:

1. Work is performed on cord and plug connected electric equipment for which exposure to hazardous energy or start up of the equipment is controlled by unplugging the equipment, and the plug is under the direct control of the employee doing the work

2. Hot tap operations are performed on pressurized pipelines involving transmission and distribution systems for materials such as gas, steam, water and petroleum products when continuity of service is essential and shutdown of the system is impractical.

a. On ARS facilities, this type of work will almost always be performed by utility companies.

b. If **SPBL** employees wish to perform this type of work, then the following conditions apply:

- Special, written procedures must be prepare approved by the Area Safety and Health Manager (Phil Smith, 409-260-9449) prior to initiation of work.
- After approval of Area Safety and Health Manager, the procedures will be attached to this plan.

D. The plan will be available to all employees for review, and a copy will be located in each facility's library and electronically.

II. DEFINITIONS

A. Affected Employee: An employee whose job requires operation or use of a machine or equipment on which servicing or maintenance is being performed under lockout/tagout, or who is required to work in an area in which such services are being performed.

B. Authorized employee: A person who locks out or tags out machinery, equipment, or energy sources in order to perform servicing or maintenance. An affected employee becomes an authorized employee when that person performs duties pursuant to this definition.

C. Energized: When any machine or equipment is connected to an energy source or contains residual or stored energy.

D. Energy Isolating Device: A mechanical device that physically prevents the transmission or release of energy. Circuit breakers, valves, and pipe blanks are examples.

E. Energy Source: Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

F. Hot Tap: A procedure used in the repair, maintenance or service activities which involve welding on a piece of equipment under pressure, in order to install connections or appurtenances.

G. Lockout: The placement of a lockout device on an energy isolating device ensuring that the energy isolating device and equipment being controlled cannot be energized until the lockout device is removed.

H. Lockout Device: A device that utilizes a positive means, such as a lock, to hold an energy isolating device in a safe position.

1. An individual lockout device will be permanently issued to each Authorized Employee.
2. Locks will be individually keyed per employee with only supervisor having a master key. Combination locks shall not be used.
3. Locks will be of a unique color and used only for the purposes of this plan.
4. Locks will indicate the identity of the employee.
5. Locks will be standardized, as much as practical, as to type and size.

I. Servicing and Maintenance: Activities such as constructing, installing, setting up, adjusting, inspecting, modifying, maintaining, and servicing of machines or equipment. This includes lubrication, cleaning, unjamming, and making adjustments or tool changes where employees may be exposed to the unexpected energizing or startup of equipment or a release of hazardous energy.

J. Tagout: The placement of a tagout device on an energy isolating device to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

K. Tagout Device: A prominent warning device such as a tag and a means of attachment which can be securely fastened to an energy isolating device to indicate that the isolating device and the equipment being controlled may not be operated until the tagout device is removed. Tagout devices will:

1. Be constructed of material to withstand any environment in which used.
2. Indicate the identity of the employee placing the tag.
3. Warn against hazardous conditions if the machine/equipment is energized and will be worded with a warning such as: DO NOT OPERATE, DO NOT OPEN, DO NOT CLOSE, DO NOT START, etc.

4. Be attached with once-use seals that must be broken when tag is removed.
5. Be standardized, as much as practical, as to shape, size, color, print, and format.

III. RESPONSIBILITIES

A. Location Coordinator

The LC is Don Freeman

1. Responsible for the implementation of the lockout/tagout program.
2. By signature, approves and authorizes the implementation, annual review, and, as needed, amendments to this program.
3. Provides resources for training, equipment, etc. called for in the program.

B. The Location Administrative Officer

The LAO is Jeanie Gwathney

1. Maintains files and records of program activities.
2. Maintains this plan
3. Publicizes this plan.

C. Location Safety Officer:

The LSO is Joel Ledbetter

1. In concert with the Research Leaders, maintenance personnel, and the safety committee, develops and maintains a list of location devices or processes covered under the lockout/tagout program.

    a. Identify energy sources for each machine or process and note on the list.

    b. Ensure that the machines or processes covered under this plan are marked so that personnel will know that lockout/tagout procedures must be followed on them.

    c. Develop specific, written lockout/tagout standard operating procedures (SOPs) for each identified machine or process and append them to this plan. The procedures shall include, but not be limited to:

        - Identification of the energy sources for a machine or process.
        - Location of energy isolation devices for the machine or process.
        - Type of lockout/tagout procedures to be used, including, for example, removal of a fuses, opening of circuit breakers; blocking of flywheels, springs, or elevated machine members; locking of controlling switches; removal of a valve handles on process lines; discharging or grounding of electrical capacitors; draining or blocking hydraulic systems; relieving air, gas, steam or water pressure, etc.
        - Any other safety measures that may be required or in addition to lockout/tagout procedures, including, for example, the personal protective equipment requirements.
        - A general SOP may be developed for like machines or processes when the hazard and energy control procedures are the same

d. Disseminate the list and lockout/tagout procedures to all appropriate personnel such as, but not limited to, research leaders, maintenance personnel, research unit safety representatives, etc.

e. Identify all Authorized Employees allowed to perform duties under this plan.

2. Oversee the lockout/tagout program.

a. Monitor employee training and ensure training records are kept.

b. Perform compliance inspections.

c. Maintain records of program activities.

D. Location Safety Committee:

1. Monitor the lockout/tagout program.

2. Review and update this plan annually.

a. Evaluate prior year's lockout/tagout operations to verify appropriate procedures have been followed.

b. Identify any servicing or maintenance work that was not performed in accordance with this plan.

c. Reevaluate lockout/tagout procedures to determine if new, different, or previously undetected energy sources exist. Add these changes, as well as procedures for controlling them, to updated edition of the lockout/tagout program, as necessary.

d. Evaluate machines or processes that have been acquired to determine if they need to be added to the lockout/tagout program. Add these new machines or processes, as well as procedures for controlling their energy sources, to updated edition of the lockout/tagout program, as necessary.

e. Study lockout/tagout injuries or accidents for preventability.

f. Evaluate employee complaints about the effectiveness of the program.

E. Lead scientists and department supervisors are responsible for:

1. Ensuring that energy isolating devices capable of accepting lockout/tagouts are installed during replacement, major repair, renovation, or modifications of machines or processes.

2. Ensuring employee compliance with the program.

F. Authorized and Affected Employees will comply with all procedures of this plan. A list of authorized employees can be found in Appendix 8.1.

IV. LOCKOUT/TAGOUT PROCEDURE

A. A list of Lockout\Tagout devices located at **SPBL** can be found in:

1. Appendix 8.2 DB NRRC
2. Appendix 8.3 SNARC
3. Appendix 8.4 ASRU

B. Prior to initiating maintenance on a machine or process, the Authorized Employee(s) shall:

1. Consult the written lockout/tagout program to determine the lockout/tagout procedures for the machine or process in question. If no procedure exists, then they shall develop one in concert with the Collateral Duty Safety Officer.

2. Notify Affected Employees of the application of lockout/tagout devices.

3. Prepare for shutdown:

   a. Assess nature and magnitude of energy.
   b. Assess hazards of energy to be controlled.
   c. Select means to control the energy.
   d. Shutdown will be according to the established procedures for the specific machine or process.

4. Isolate the machine or process from energy sources. Apply lockout/tagout devices as follows:

   a. The Authorized Employee shall install their individual lockout device on the energy isolation device (e.g., lock a circuit breaker in the open position using a padlock).
   b. Lockout devices will be affixed in a way that will hold the energy isolating devices in a safe or off position.
   c. Tagout devices will be affixed in such a manner that will clearly indicate that the operation or movement of the energy isolating device is prohibited.
   d. Tags will not be used in lieu of locking devices. If a machine or process cannot be locked out, and if its actuator is not under the immediate custody and control of the Authorized Employee(s), then an employee shall be stationed at the actuator to prevent accidental or inadvertent startup of the machine or process.
   e. When a tag cannot be affixed directly on the energy isolation device, it will be placed as close as possible to the machine or process such that it will be immediately seen by anyone attempting to operate the machine or process.
   f. When using tagout procedures, the level of safety achieved must equal that of when a lockout device is used.

C. Initiate maintenance or service. During maintenance or service operations, continuous verification of the energy isolation system will be necessary if a possibility exists that stored energy may reaccumulate during servicing or maintenance.

D. After maintenance or servicing is complete, the machine or process shall be released from lockout/tagout as follows:

1. Before release from lockout/tagout:

   a. Inspect work area for removal of nonessential items and to verify the machine or process is operationally intact.
   b. Inspect work area to ensure all employees have been safely removed or positioned.
   c. Clear machines or process of tools and materials.
   d. Verify that all operating controls are in a neutral or off position.

2. Lockout/tagout removal:

a. Locks or tags will only be removed by the Authorized Employee who applied them.

b. If an Authorized Employee is not available to remove the device, the supervisor will:

- Verify that the Authorized Employee is not at the facility.
- Make reasonable effort to contact and inform the employee that the lockout device was removed.
- Verify in writing that the employee has knowledge the lockout device was removed before allowing the employee to return to work.
- Accomplish the lockout/tagout release procedure using the master key.

3. Test the machine or process after lockout/tagout devices have been removed by energizing and then proceeding with testing or positioning.

4. Notify Affected Employees of the application and removal of lockout/tagout devices before applied and after removal

E. Procedures for Group, Multi-shift, or Cross-Departmental Lockout/tagouts

1. When a group is performing maintenance or service work, or when the work extends into a different work shift or involves more than one department, then one person per group, shift, and/or department shall be appointed Supervisory Authorized Employee.

2. The Supervisory Authorized Employee is responsible for ensuring that all lockout/tagout procedures within their group or shift have been conducted properly.

3. Group or Multi-shift Lockout/Tagout Application

a. The Supervisory Authorized Employee will place his or her lockout/tagout device on the energy isolation device first.

b. Each authorized individual in a group will then place their lockout/tagout device on the energy isolation device.

c. Upon shift change or completion of the work, each employee will remove their lockout/tagout device. The Supervisory Authorized Employee will not remove their own device until verifying that all employees in the group have removed their lockout/tagout device and are accounted for. The Supervisory Authorized Employee will then remove their lockout/tagout device in the presence of the incoming Supervisory Authorized Employee.

d. The incoming Supervisory Authorized Employee will install his or her lockout/tagout device immediately and in the presence of the off going supervisor, and the new shift's lockout/tagout procedure will proceed as in Item b, above. In the case of any occurrence, change, alteration or lapse of time between lockout/tagout, the new Supervisory Authorized Employee will stop all work until the sequence of lockout/tagout procedures has been completed and verification has been made.

F. Contractor or other personnel working with hazardous energy

1. The Government's Contracting Officer (or designated representative) is responsible for advising contractors of location lockout/tagout procedures.

2. The Government's Contracting Officer will:

   a. Inform the contractor of the location's lockout/tagout procedures.
   b. Apprise the contractor of the energy sources and hazards or potential hazards of the machine or process being worked on.
   c. Advise location employees of the contractor's work and specific lockout/tagout procedures.
   d. Ensure the contractor coordinates operations when both government and contractor employees are working on or near a machine or process.
   e. Debrief the contractor at the end of operations regarding any hazards confronted or created by the machine or process.
   f. Review and approve the contractor's lockout/tagout program, ensuring it is at least as strong as the Government's, prior to initiating work.

3. Location employees who work in the area where contractors will be performing lockout/tagout operations will be advised of and comply with the contractor's program.

G. Disciplinary Action:

1. Any employee who tampers with any lockout\tagout device will face severe personnel action.

V. TRAINING REQUIREMENTS

A. Authorized Employees will receive, at a minimum, the following training:

1. Recognition of the types and magnitudes of hazardous energy sources in the workplace.

2. Methods and means necessary for energy isolation and control.

3. Contents of this plan.

B. Affected Employees will receive as a minimum:

1. Purpose and use of energy control procedures.

2. The prohibition relating to attempts to restart or reenergize machines or processes that are under lockout/tagout.

3. The contents of this plan.

C. When tagout is utilized employees will be trained in the limitations of tags.

D. Employee retraining will be accomplished when:

1. There is a change in job assignments.

2. A change in machines, equipment or processes presents new hazards.

3. A change in energy control procedures occurs.

4. Deviations or inadequacies in employee knowledge are discovered.

E. Training Records:

1. Location Coordinator or designated representative will certify that the appropriate training has been accomplished by signature.

2. The certification will contain each employee's name, date, and type of training.

3. Training certifications will be kept for a minimum of three years.

VI. PROGRAM COMPLIANCE

A. Inspections may be performed at any time by the Collateral Duty Safety Officer or an authorized employee other than the persons utilizing the energy control procedure. The inspection will include a review, between the inspector and each authorized employee of the employee's responsibilities under this plan.

B. Inspection records:

1. Will include any deviations or inadequacies discovered

2. Will identify the machine or equipment on which the energy control procedure was being utilized, the date of the inspection, and the employees included in the inspection

3. Be certified by inspector signature

4. Will be kept on file for no less than three years.

5. One copy will be attached to this plan

6. Copy of the inspection will be given to Location Coordinator or representative and to the safety committee for correction of any deviations or inadequacies identified.

Appendix 8.1

Authorized Employees

DB NRRC

Cletus Patterson Color Code Green 

Color Code Yellow 

SNARC

Billy Shelton Color Code Blue 

Robert Ideker Color Code Red 

ASRU

Currently no authorized employees

Appendix 8.2

LIST OF LOCK OUT TAG OUT DEVICES
FOR
DB NRRC

BOILERS, AIR HANDLING UNITS AND ASSOCIATED PUMPS

Boilers and all associated pumps shall be lock out tag out, for electrical, steam and hot water.
Power lock out shall take place at power source located in room 109 panel H2 sections 1 and 2 and panel L2.
Water shall be locked for pumps located in room 105 at valve numbers 52,53and 64.
Water for pumps located in room HL4 shall be locked at valves number 49,50 and 51.
Water and Steam for pumps located in room 108 shall be locked out at valves numbered 80 and 81.

Power -open disconnect listed and lock out
Water close valve listed and tag

Hot Water Pump
LOCK OUT

Power H2 section 2 breaker 1,3 and 5

Mechanical Air Comp.
LOCK OUT

Power H2 section 2 breaker 7,9 and 11

Chill Water Pump
LOCK OUT

Power H2 section 2 breakers 19,21 and 23

Air Dryer - T.C. Comps.
LOCK OUT

Power L-2 breaker 15

Air Dryer-Lab Air Comp
LOCK OUT

Power L-2 breaker 2

Hot Water Cir. Pump
LOCK OUT

Power L-2 breaker 4 and 6

Mechanical control Panel
LOCK OUT

Power L-2 breaker 16

Boiler Control
LOCK OUT

Power L-2 breaker 16 and 18

Deionizing Reverse Osmosis
LOCK OUT

Power L-2 breakers 30,32,34 and 36

Electronic Filters F-1, F-2 and F-3
LOCK OUT

Power L-2 breaker 7

Electronic Filters F-4 and F-5
LOCK OUT

Power L-2 breaker 9

Electronic Filter F-6
LOCK OUT

Power L-2 breaker 5

Lab Air Compressor
TAG OUT

Power H2 section 2 breaker 32,34 and 36
Air at unit

Lab Vacuum Pump
TAG OUT

Power H2 section 1 breakers 31,33 and 35
Air at unit

Lights - Exterior Poles
LOCK OUT

Power H2 section 1 breaker 44

HEAD HOUSE HEATERS

Power tagout at panel LH breakers 1,3,5 and 7
Power -open disconnect listed and lock out
Water close valve listed and tag

CHILL WATER PUMP

Valve lock out at room 109 valves 156 and 153
Power -open disconnect listed and lock out
Close valve listed and tag

HOT WATER PUMP

Valve lock out at room 109 valves133 and 134
Lock out power at pump
Close listed valve and tag

CHILLER

Power lock out at room HL1
Panel Chiller 1 and Chiller 2
Power- open disconnect listed and lock out

AIR HANDLING UNITS (AHU)

AHU #1
Power tag out MI 14,16,18

AHU #2
Power tag out MI 8,10,12

AHU #3
Power tagout HN 5

AHU #4
Power tag out HN 3

AHU #5
Power tag out MI 1,3,5

AHU # 6
Power tag out MI 7,9,11

All greenhouse heaters, exhaust fans, and sump pumps.

LOCK OUT ITEMS FOR CONFINED SPACE

Cold room 152A
Power lock out at EDP 13,15,17

Cold room 201A
Power lock out at EDP 1,3,5

Cold room 245A
Power lock out at EDP 5,7,9

Growth Chamber 206A
Power lock out at HDI 26,28,30

LOCK OUT ITEMS FOR LABS

L-1-B
Range
Power lock out at room 132 panel L1 section 1.

L-3
DNA sequencer on UPS.
Unplug at UPS

L-11
Autoclave
Power tag out at disconnect in L11C
Steam tag out at water inlet and outlet.

L-20
Autoclave
Power tag out at disconnect room L20
Steam tag out at water inlet and outlet.

L-16
Dishwasher
Power tag out at disconnect in L-16

Dish dryer
Power tag out at disconnect in L-16

L-17
Boiler under sink
Power lock out at panel ILJ 27
Water lock out at unit inlet and out let

HL-12 Walk in Growth chambers
Power lock out at Panel

HL-12 Growth chamber south
Power lock out panel 2LC breakers 31,33 and 35

HL-12 Growth chamber north
Power lock out panel 2LC breakers 37,39 and 41

HL-12 Incubator #1
Power tag out panel 2LE breaker 1

HL-12 Incubator #2
Power tag out panel 2LE breaker 7

HL-12 Incubator #3
Power tag out panel 2LE breaker 7

FIRE SUPPRESSION AREA

Power lock out at Panel
DC power lock out at
Water lock out at valve

GENERATOR

Power lock out at HL 1
Panel HD2
DC at battery

UNINTERRUPTED POWER SUPPLY

Room 202
Power lock out at UPS 1 and 2

SEWER LIFT STATION

Power at station

Appendix 8.3

LIST OF LOCK OUT TAG OUT DEVICES
FOR
SNARC

Power lock out for equipment (All disconnects, breakers and emergency power source are labeled)

TANK FARM (pump house)

Well water supply pumps lock out

North-15hp pump: (water supply for wet laboratories) fused disconnect switch on the east wall.
Note: When power is disconnected from this pump the generator will start automatically.

South-15hp pump: (water supply for tank farm) Fused disconnect on the east wall.
Note: When power is disconnected from this pump the generator will start automatically.

Emergency well water supply pumps: (2) Fused disconnects on the east wall
Note: When servicing or repairing these pumps the generator must be locked out.

Waste water re-lift power lock out

Fused disconnect on the east wall above the pump (for pump disconnect only)
Pump and electrode disconnect is located in the brick building to the right of the entrance door.

Filter system (2)

Fused breakers inside the electrical panel on the south wall.
Shut-off valves are installed on the filter system piping.

Air blower power lock out (3)

Fused disconnect on the north wall behind the blowers.
Note: One blower operates on emergency power and lock out on the generator must be implemented.

Emergency (generator) power lock out

Turn off motor disconnect switch inside the transfer panel on the east wall, put the remote start/stop switch in the stop position and disconnect the battery cable.

Transfer panel power lock out

Breaker inside the electrical panel on the south wall (marked as transfer panel)
Note: The generator remote start/stop switch must be in the stop position and the battery cable removed from the generator set.

Electrical power lock out

Main disconnect (for pump house and tank farm) is on the power pole south of the tank farm pump house.
The pump house has a main disconnect on the south wall beside the entrance door.
The tank farm has a main disconnect on the south wall beside the roll-up door.
Note: The electrical service for the trenches in the tank farm is located inside the pump house to the left of the entrance door.

Natural gas supply lock out

The main shut-off valve is located on the west side of the property next to hwy 130. (gas meter)
Note: A wrench is attached to the meter (for turning off the gas supply) and this will shut off gas supply to all buildings at the facility.

Deep well (south) power lock out

Main disconnect 10 feet south of well

Electrodes power lock out (electrodes inside the south water storage vat)

The main disconnect on the north and south wells will disconnect power to the electrodes.

Note: The north well operates on emergency power and lock out must be implemented on the generator set located in the bird research building.

TANK FARM (Fish holding building)

Trench electrical power lock out

Electrical panel is located inside the pump house building left of the entrance door.

Air supply lock out

Fused disconnects inside the pump house on the north wall.
Note: One blower operates on emergency power and lock out must be implemented on the generator set located inside the pump house.

Water supply lock out

The south 15hp pump in the pump house must be turned off.
Note: Turning off this pump will make the generator start. Lock out on the generator must be implemented before turning off the pump.

Electrical supply lock out

Main breaker is on the utility pole south of the building and beside the roll-up door on the south wall.
Note: When the main breaker on the utility pole is turned off, it disconnects power to all equipment and lock out must be implemented on the generator set in the pump house.

Space heater power lock out

Breaker under heater for the electrical service disconnect
Gas shut off valve under heater

Hot water heater power lock out

Breaker on east wall behind the heater
Gas shut off valve connected to heater gas piping
Water shut off valve connected to water piping on heater

WET LAB BUILDING # 1A

Well water supply

Water shut off valve is located in the 4in supply line in the generator pump room.
Well water is supplied by the 15hp (north) pump in the tank farm pump house.

Air blower power lock out

Fused disconnect on the east wall behind the blower
Note: If blower is turned off, lock out must be implemented on the generator to prevent the stand-by blower from operating.

Emergency power supply (generator) power lock out (3)

Turn off the motor disconnect switch in the transfer panel for the generator being serviced or repaired, place the remote start/stop switch in the off position, and remove battery cable

Transfer panel power lock out

Breaker in electrical panel on the west wall
Note: Lock out must be implemented on the generator set and all staff notified before any repairs are performed on the panels.

Hot water heaters power lock out

Breaker on south wall
Gas shut off connected to heater piping
Water supply on south wall

Electrical power supply lock out

Main breaker for the entire building is located in the electrical building next to hwy 153
Individual circuits are located in each equipment room
Note: When power is turned off to this building lock out must be implemented on all of the generator sets.

Chiller power lock out
Main breaker in panel attached to the chiller

HVAC unit power lock out
Fused disconnects mounted in front of 2 condenser units on the west side of the bldg.
Gas shut off valve mounted to the piping on the furnace

Furnace (in attic) power lock out
Breaker located on unit and the electrical panel in the furnace room
Gas shut off in piping on unit

Roof top HVAC power lock out
Fused disconnect mounted to unit and breaker in furnace room panel (labeled)
Gas supply shut off valve mounted to piping on unit

Fume hood power lock out
Breaker located in furnace room (labeled)

Natural gas supply lock out
Shut off valve on the south east end of the building

SHOP BUILDING #9

Furnace power lock out
Breaker in panel beside doorway
Gas shut off mounted in piping on furnace

Hot water lock out
Gas shut off mounted to heater piping
Water shut off valve in piping on top of heater

Electrical supply power lock out
Main disconnect in panel beside doorway

Natural gas lock out
Shut off valve on the north east end of the building

BIRD RESEARCH BUILDING #8

Space heater power lock out
Fused disconnect behind heater
Gas shut off valve in heater piping

Emergency generator-power lock out
Turn off motor disconnect switch in transfer panel in the adjoining room and in the fire pump bldg, put the remote start/stop switch in the off position and remove the battery cable.
Gas shut off is on the east outside wall

North well power lock out
Main disconnect southeast of the well
Note: Well runs on emergency power also, so lock out must be implemented of the generator in building #8

OLD OFFICE (ADMIN) BUILDING#2

HVAC power lock out
Fused disconnect mounted behind unit
Gas shut off mounted to piping on the unit

Blower fans power lock out
Breaker in panel behind units on the west wall

Hot water heater lock out
Gas shut off mounted in piping on unit
Water shut off mounted to piping on unit

Gas supply for bldg. lock out
Located on south outside wall west of doorway

Electrical supply power lock out
Main breaker located in the electrical building next to hwy 153
Individual circuits are in the panel in the mechanical room

WET LAB BUILDING #3

Feed manufacturing equipment power lock out
Fused disconnects mounted in behind each piece of equipment

HVAC power lock out
Fused disconnect mounted behind unit
Gas shut off in piping on unit

Chiller power lock out
Breaker mounted to the unit

Well water supply lock out
Individual valves located in all lines
Main water shut off is located in building 1A in the 4in supply line

Air supply power lock out
Breaker on the west wall in the filter house bldg. #5

FILTER HOUSE Bldg. #5

Emergency power supply (generator) lock out
Turn off motor disconnect switch in the transfer panel, put the remote start/stop switch on the generator set in the off position and remove battery cable

Transfer panel power lock out
Breaker in main panel on the north wall
Note: Lock out must be implemented on the generator set

Power lock out for all pumps
Breakers on north wall

Furnace power lock out
Breaker in panel on north wall
Gas shut off mounted to piping on heater

Chlorinating system lock out

Water shut off valve mounted in piping
Chlorine shut off valves on top of the bottles

Gas supply lock out

Shut off valve on the southeast side of the building

OFFICE/LABORATORY BUILDING #1

MECHANICAL ROOM EQUIPMENT

Air compressor power lock out

Breaker in electrical panel

Vacuum pump

Manual disconnect mounted to the unit

Hot water supply and return pumps

Fused disconnects mounted on the north wall

Oil-less compressors

Fused disconnects mounted on the south wall for each compressor.
Note: The compressors electrical service is supplied by emergency power coming from bldg. # 1A and lock out must be implemented on generator #1 before repairing.

Hot water heaters lock out

Breakers in panel on west wall
Gas shut off is mounted in the piping on the unit

Deionized water power lock out

Fused disconnect on the south wall (same as east compressor)

Gas supply lock out

Gas shut off is outside the double doors and at the meter next to hwy 130

Electrical supply power lock out

Main breaker is in mechanical room hallway
Note: Several pieces of equipment operate on emergency power, and lock out must be implemented on the generators in bldg.1A.
All staff must be notified before disconnecting power.

Emergency power supply for bldg. #1

Breakers for equipment supplied by emergency power in the mechanical room (server, emergency lighting, compressors, telephone, fire alarm, intrusion alarm, and the door locking system.) are located in the mechanical room hallway.
Note: The main breaker for all systems listed above is located on the outside of the (south) transfer panel in bldg, #1A next to the south entrance doorway.
Breakers for emergency power in rooms 113,119, and 132 are located in bldg. #1A in the mechanical room on the south wall.

Chiller power lock out

Breaker is mounted to the unit
Water shut off valve is in room #119

Variable speed fan drives power lock out

Manual on/off switch mounted on the unit
Breaker in panel L1A in room #111 (mechanical room)

HVAC roof top unit power lock out
Main breaker mounted on the unit, and also in the mechanical room hallway

Fume hood exhaust fans power lock out
Disconnect mounted to each unit

Chlorinating, sewer, and acid neutralization pumping stations-power lock out
Breakers mounted to each unit

PUMP HOUSE #1

Re-lift pump power lock out
Fused disconnect mounted on the north wall

POND ELECTRICAL

Ponds # A1 through A18
B1 through B18
C1 through C18
D1 through D18
Breakers mounted to each pedestal
Main power-disconnect mounted on power pole on center gravel road.

Ponds #E1 through E9 power lock out
Breaker mounted on each pedestal
Main breaker mounted on west side of pump house #1 (outside)

Pond drain pumps power lock out
Mounted beside pumps
Main breaker mounted on power the pole in front of the pumps on the gravel road

MAIN DISCONNECTS FOR BUILDINGS # 1A, #2, #3
Fused disconnects located in the electrical building next to hwy 153. All are labeled
Note: If power is disconnected, the emergency generators will start automatically.
Lock out must be implemented on all generators in the mechanical room of bldg. # 1A and in the filter house bldg. #5

Appendix 8.4

LIST OF LOCK OUT TAG OUT DEVICES
FOR
ASRU

Use UAPB standards

No items at this time